Item #10: Elk and Mule Deer Populations

Evaluation Objectives: To evaluate the changes in the population status of elk and mule deer on the forest and the relationship of population changes to forest management practices.

Methods: Methods used for estimating elk and deer population numbers are discussed under item #8 and are similar for estimating elk and mule deer populations. Montana FWP uses a harvest-based population estimator when setting big-game harvest quotas. Big game managers rely on harvest-based sex and age data to determine herd status and prescribe annual harvest regulations. Most harvest-based models depend on accurate harvest data obtained from check stations and hunter surveys for population estimation. Plus, these population indices are often used in tandem with aerial flight surveys to provide relative abundance measures important for both characterizing local populations and validating population estimation techniques.

Evaluation: Mule deer harvest estimates are from 1974 to 2006 and elk harvest estimates are from 1967 to 2005. 2005 had the highest number of elk harvested in almost 20 years (Tables 10-1 and 10-2). The greatest number of elk are found in the South Fork drainage but increasing numbers of elk are occurring in the Swan, Blacktail and Tally Lake areas. Mule deer are less numerous than elk and white-tailed deer but are also increasing in numbers since the devastating winter of 1996-97. A greater number of mule deer are harvested from the Tally Lake and North Fork areas. The 2006 mule deer harvest was the highest number since 1995.

The numbers presented here are estimates for all hunting districts except for HD 170 where National Forest System (NFS) lands are so limited it made sense to report only 1% of the harvested population. Previous biologists made an attempt to approximate the percent of NFS lands within each HD but to the best of my knowledge, did not use the percentages for the harvest (Table 10-1). Even though deer and elk do not know ownership boundaries and move according to seasonal or behavioral conditions it seems logical that the majority of harvest for these more mountainous animals probably came from FNF lands.

Starting in 1962, statewide trends in estimated elk harvest in Montana indicate substantial increases in both antlered and antlerless harvest since the early 1980s. The decline in antlerless elk harvest in the mid-1970s occurred at the same time that conservative deer seasons were implemented after a decline in deer populations. Concurrently, in substantial areas of the state, season-long either- sex seasons for elk were replaced by antlered bull regulations with limited permits for antlerless elk. This reduction in hunting pressure on antlerless elk likely was the prime cause of increasing elk populations by the early 1980s. In addition, since 1963, there has been a 60% increase in the amount of occupied elk habitat in Montana.

The elk population is approaching the highest levels in 20 years and the mule deer population has surpassed the level of 1996. Both species continued an upward trend since the winter of 1996-97. In the early 1990s, an annual average of 800 acres were improved primarily for big game. During the period after 1997, an annual average of 1400 acres were improved primarily for big game. Additional acres (400 annual pre-1997 and 1400 annually post-1997) of habitat improved primarily for threatened and endangered species would generally have improved conditions for

big game also. This amount of habitat improvement acres for wildlife and threatened and endangered species is well above the (+/-) 200-300 acres estimated annual from the Forest Plan desired condition. In addition to this timber harvest, wildfire and fire use management have created a diversity of habitat conditions generally favorable for big game. Thousands of acres have also been improved for habitat security by grizzly bear access management accomplishments with road decommissioning and motorized vehicle restrictions (see Tables 16b-10 and 16b-11 in item 16.).

Determining significant changes between years would be problematic due to flight conditions, weather conditions, vegetation cover, lack of qualified pilots, observer error, and sheer size of big game distribution across the state or even the forest. Mild/severe winters, predation, disease, early snow cover during the harvest, habitat loss due to private land development, and liberalized hunting opportunities also affect the population. The state has the responsibility to annually monitor big game trends, hunter data, and harvest success, in order to regulate the harvest accordingly for sustainable populations. Even though the science is limited in accuracy, these are the best estimates based on decades of experience and research. More reliable estimates of big game populations are unrealistic to achieve without an extremely large amount of financial and personnel commitment. Montana FWP and the Forest Service have a unique partnership to jointly manage wildlife and wildlife habitat. Montana FWP is responsible for protecting, enhancing and regulating the sustainable use of the state's wildlife resources for public benefit now and in the future. Montana FWP manages its wildlife program to balance game damage, human/wildlife conflicts and landowner/recreations conflicts with the perpetuation and protection of wildlife populations. Montana FWP provides and supports programs to conserve and enhance Montana's terrestrial ecosystems and the diversity of species inhabiting them, oftentimes in cooperation with the FNF. Montana FWP has the ability to address management issues at the herd or management unit level directly with the forest to address any site specific issues. Forest biologists are in contact with state biologists during forest management projects that may potentially affect big game and often ask or receive technical assistance in project design to benefit or reduce impacts to wildlife habitat.

Recommended Action:
In addition to habitat quality and quantity, many factors other than Forest Service management can influence big game populations. The state has the responsibility to monitor big game harvest success, to regulate the harvest accordingly for sustainable populations. The FNF should continue to consult with MT FWP biologists to arrive at site specific objectives for the affected habitat. The Forest Service should continue to evaluate cover/forage, road density and other relationships for effects analysis at the project level, while addressing the cumulative effects of prescribed burning, wildfire and timber harvest or fuels reduction for WUI community protection projects. From a Forest Service perspective, measures of MT FWP harvest/trend statistics, habitat security, access management changes, and acres of habitat improvement are important features of big game management and should be used as surrogates to indirectly estimate the effects of forest management on big game.

Table 10-1. Elk Harvest and Percent of Forest in Hunting Districts on Flathead N. F.

ELK HARVEST	Tally Lake 102	North Fork 110	Blacktail 120	Swan 130	(Swan) 131	No. Swan 132	L So Fork 140	LMid Fork 141	U So Fork 150	U Mid Fork 151	Flt F 1
HD % NFS	75%	100%	50%	75%		50%	100%	100%	100%	100%	
1967	0	83	0	262	83		430		433		
1968	77	110	54	374	55		555		356		
1969	0	120	8	96	80		470		326		
1970	28	46	19	167	43		465		304		
1971	21	103	18	188	28		637		323		
1972	35	78	34	170	40		389		314		
1973	26	65	18	194	95		634		466		
1974	17	103	32	153	72		447		397		
1975	18	167	48	188	105		498		402		
1976	33	66	34	58	67		351		396		
1977	40	111	41	165	57		396		464		
1978	19	79	9	135			256	65	321		
1979	46	106	43	123			199	68	290		
1980	41	148	51	151			251	94	267	30	
1981	70	36	26	112			264	60	257	20	
1982	29	78	25	78			235	119	284	43	
1983	20	119	23	97			280	56	225	33	
1984	57	130	22	171			354	65	332	27	
1985	35	112	15	163			150	70	271	18	
1986	44	146	18	100			167	59	180	17	
1987	59	137	16	75			142	65	200	6	
1988	35	121	34	79			223	146	206	35	
1989	20	106	10	67			191	91	156	16	
1990	27	108	25	39		14	129	68	143	22	
1991	24	125	27	82		40	169	65	100	47	
1992	31	86	19	71		22	168	81	113	32	
1993	22	83	27	37		22	121	73	93	50	
1994	13	69	51	66		25	107	100	141	40	
1995	22	64	38	40		8	68	51	106	30	
1996	17	55	40	30		60	69	102	57	25	
1997	no	data									
1998	no	data									
1999	8	9	19	15		12	41	36	66	27	
2000	11	23	21	10		8	23	26	48	20	
2001	16	28	20	16		13	56	19	60	25	
2002	7	49	29	21		17	40	29	60	32	
2003	50	58	37	39		9	66	57	120	21	
2004	35	84	40	90		53	93	43	102	44	
2005	76	81	69	82		56	75	40	208	21	
2006	51	73	76	70		20	98	34	245	18	
2007	90	80	47	75		14	95	71	156	20	
Average	**31**	**89**	**29**	**108**	**66**	**26**	**249**	**67**	**232**	**28**	

Figure -1. Long term estimates of elk harvest from the Flathead N. F.

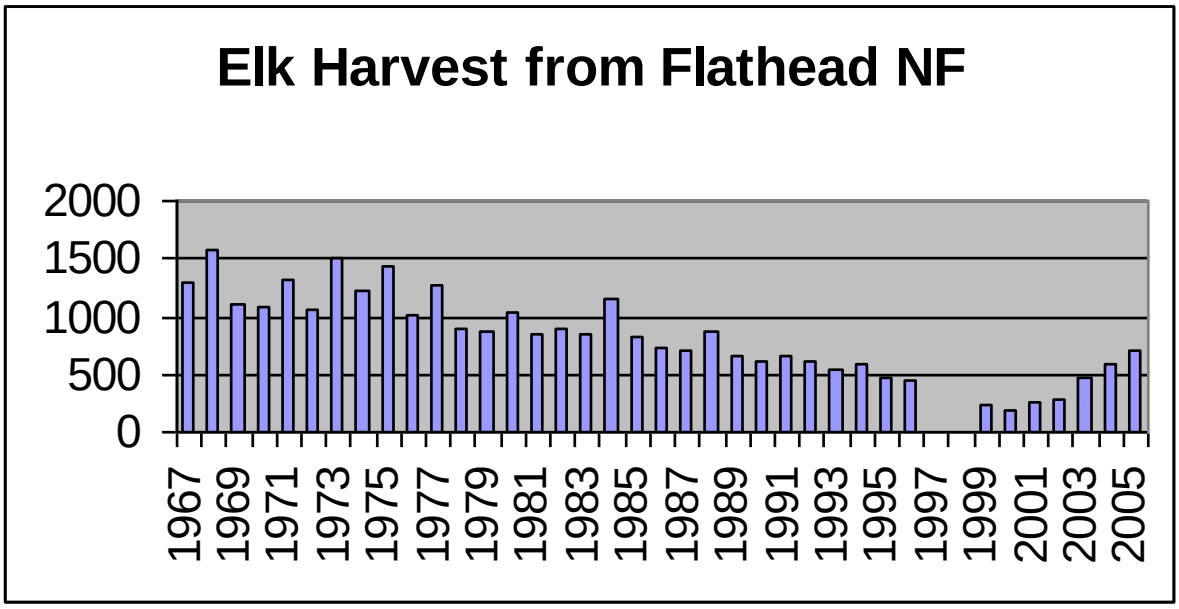

Table 10-2. Mule Deer Harvest and Percent of Forest in Hunting Districts on Flathead N. F.

Mule Deer Harvest	Tally Lake 102	North Fork 110	Blacktail 120	Swan 130	No. Swan 132	L So Fork 140	LMid Fork 141	U So Fork 150	U Mid Fork 151	Flt River 170	**Total**
HD % NFS	(75%)	(100%)	(50%)	(75%)	50%	100%	100%	(100%)	100%	1%	
1974	70	115	30	75		116		110			**556**
1975											**0**
1976											**0**
1977											**0**
1978	91	116	35	69		93	31	157			**592**
1979	150	149	55	96		90	23	160			**723**
1980	132	180	60	122		154	30	133	17		**828**
1981	198	149	53	112		82	34	155	21		**804**
1982	181	109	44	176		93	18	88	21		**730**
1983	137	213	47	129		92	38	149	34		**839**
1984	188	206	76	248		163	20	158	13		**1072**
1985	132	95	66	178		93	5	109	0		**678**
1986	105	184	44	141		129	12	105	8		**728**
1987	225	143	59	72		101	35	132	4	3	**774**
1988	220	213	79	124		191	34	154	22	4	**1041**
1989	186	179	96	182		115	29	121	20	2	**930**
1990	122	129	40	121	37	84	31	48	7	2	**621**
1991	201	103	50	96	61	97	40	81	45	5	**779**
1992	249	155	60	113	46	106	65	44	25	3	**866**
1993	230	76	54	54	32	72	15	82	4	3	**622**

Mule Deer Harvest	Tally Lake 102	North Fork 110	Blacktail 120	Swan 130	No. Swan 132	L So Fork 140	LMid Fork 141	U So Fork 150	U Mid Fork 151	Flt River 170	**Total**
1994	133	125	40	126	52	98	11	82	20	1	**688**
1995	104	52	56	97	15	64	19	83	11	1	**502**
1996	70	48	26	54	57	38	10	58	19	1	**381**
1997	36	51	51	42	18	36	12	9	6	0	**261**
1998	68	31	16	25	6	34	9	16	6	0	**211**
1999	60	28	63	44	3	41	28	35	16	1	**319**
2000	103	48	39	27	15	33	15	24	21	1	**326**
2001	85	67	42	34	14	28	6	65	7	1	**349**
2002	66	74	27	29	40	29	21	39	19	1	**345**
2003	88	82	31	40	37	46	36	41	10	1	**412**
2004	100	104	66	60	44	90	26	50	11	2	**553**
2005	137	182	93	52	24	53	39	97	13	3	**693**
2006	130	162	97	34	44	67	18	104	19	4	**679**
2007	95	81	99	59	24	60	19	58	19	1	**502**
Average	**135**	**119**	**54**	**93**	**32**	**83**	**24**	**89**	**16**	**2**	**631**

Figure 2. Long Term Estimates of Mule Deer Harvest From the Flathead N. F.